

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-29. (Cancelled)

30. (Previously Presented) A spectroscopic system for measuring analyte concentration in a sample, the system comprising:

a radiation source emitter, the emitter emitting radiation;

a radiation homogenizer disposed to receive at least a portion of said emitted radiation, wherein the homogenizer angularly and spatially homogenizes at least a portion of said emitted radiation, wherein said homogenized radiation illuminates said sample; and

a sample source, the sample source having an analyte; and

a detector for receiving at least a portion of the radiation subsequent to interacting with said sample.

31. (Original) The spectroscopic system of claim 30, wherein the radiation source emitter is a tungsten-halogen lamp.

32. (Original) The spectroscopic system of claim 30, wherein the emitted radiation possesses a band of wavelengths within the infrared regions of the electromagnetic spectrum.

33. (Original) The spectroscopic system of claim 30, wherein the spectroscopic system includes a means for concentrating the radiation emitted by the radiation source emitter.

34. (Previously Presented) The spectroscopic system of claim 30, wherein the spectroscopic system includes a means for channeling the emitted radiation to the sample source.

35. (Original) The spectroscopic system of claim 34, wherein the channeling means is at least one fiber optic wire.

36. (Original) The spectroscopic system of claim 34, wherein the channeling means is at least one mirror.

37. (Original) The spectroscopic system of claim 34, wherein the channeling means is at least one optic lens.

38. (Original) The spectroscopic system of claim 30, wherein the radiation homogenizer is a light pipe, wherein the light pipe has a proximal end, a distal end, and a length of material therebetween, the light pipe further having a cross-sectional area.

39. (Original) The spectroscopic system of claim 38, wherein the light pipe includes a plurality of bends.

40. (Original) The spectroscopic system of claim 39, wherein the plurality of bends form an S-shaped bend.

41. (Original) The spectroscopic system of claim 38, wherein the cross-sectional area of the light pipe is polygonal in shape.

42. (Cancelled)

43. (Original) The spectroscopic system of claim 30, wherein the sample is biological tissue.

44. (Original) The spectroscopic system of claim 30, wherein the sample is a human appendage, or a portion thereof.

45. (Original) The spectroscopic system of claim 30, wherein the analyte measured is glucose.

46. (Original) The spectroscopic system of claim 30, wherein the analyte measured is alcohol.

47. (Original) The spectroscopic system of claim 30, wherein the spectroscopic system includes at least one bandpass filter.

48. (Previously Presented) A method for homogenizing radiation for spectroscopic analysis, the method comprising the steps of:

providing a spectroscopic system, wherein the system comprises a radiation source emitter, a radiation homogenizer, a sample having an analyte concentration, and a radiation detector;

emitting radiation by means of the radiation source emitter;

angularly homogenizing the emitted radiation;

spatially homogenizing the emitted radiation;

illuminating the sample source with the homogenized radiation; and

detecting the analyte concentration within the sample source.

49. (Original) The method for homogenizing radiation for spectroscopic analysis of claim 48, wherein the radiation homogenizer is a light pipe.

50. (Original) An optical measurement system used to measure an analyte or attribute in a biological system, the system comprising:

a spectrometer including a source and a collection system;

a sampling system for performing reflectance measurements on tissue;

a measurement system for measuring multiple wavelengths in the range for 4000 cm^{-1} to 7500 cm^{-1} ;

a prediction process that uses multiple variables obtained from the measurement system;
and

an illumination system that does not introduce prediction errors of clinical significance when used in a standard manner.

51. (Original) The illumination system of claim 50, wherein the illumination system uses both angular and spatial homogenization of the source output.

52. (Original) The system of claim 51, wherein standard operation would include bulb aging and replacement of the bulb.

53. (Original) The system of claim 51, wherein the analyte of interest is glucose and a prediction error of clinical significance is 10 mg/dl.